

R E M A R K S

This is in response to the Office Action of April 6, 2007. The title of the invention is amended for greater clarity. No substantive amendment is made to the claims. In claim 6, language is changed to be more idiomatic. Specifically, the word “optionally” is substituted for the phrase “if occasion demands.” This change to claim 6 is a non-narrowing amendment. No new matter is introduced by this Amendment. Claims 1-6 remain pending in the present application.

The invention

The present invention relates to powdered cores. The powdered cores of this invention are made by compacting iron powder containing electrically insulating binder resin to form green compacts. The green compacts obtained in this way are then subjected to heat treatment. Thus, in the present invention, the iron powder particles are not combined metallurgically. Instead they are combined by the binder resin. Powdered cores of this type are not very strong. Cracking or chipping are liable to occur when they are subjected to machining or drilling processes. See the “Background Art” section of the specification.

The present invention solves those problems (i.e., cracking or chipping during machining or drilling) by specifying that “iron powder is composed of atomized iron powder and reduced iron powder” to make the presently claimed powdered cores. By employing this particular type of iron powder, Applicants are able to provide powdered cores having good strength properties. See, e.g., the specification, page 11, lines 10-11, and page 20, lines 13-17.

The kinds and relative amounts of resins that are specified as being components of the present invention are designed to provide improved magnetic flux density and to decrease iron loss from the presently claimed powdered cores having improved machinability.

Rejections over prior art

All of the claims were rejected under 35 U.S.C. § 103(a) as being unpatentable over US 5,767,426 (“Oliver”) in view of US 2002/0029657 (“Uenosono”) and US 4,543,208 (“Horie”). Office Action, pages 2-4. Claim 1 was additionally rejected under 35 U.S.C. § 103(a) as being unpatentable over Horie in view of Uenosono. Office Action, pages 4-5. The rejections are respectfully traversed.

Oliver is acknowledged by the Examiner to differ from the present invention with respect to (a) the iron powder composed of atomized iron powder and reduced iron powder, and (b) the use of, for instance, polyimide as an organic insulating material and binder. The Examiner argues, however, that this feature (a) is provided by Uenosono and that this feature (b) is provided by Horie. Applicants respectfully disagree that Uenosono and Horie remedy the acknowledged deficiencies of the Oliver reference.

Uenosono discloses iron-based powder for powder metallurgy. The Uenosono product contains an iron-based powder, an alloying powder, a binder, and also a machinability-improving powder. The Uenosono iron-based powder comprises, on the basis of mass-%, from about 60% to 90% of the atomized powder and 10% to 40% of reduced iron powder. In the Uenosono technology, the die-filling property of the iron-based mixed powder is improved without significant lowering of compressibility by mixing an appropriate amount of reduced iron powder with atomized iron powder as a main component.

Consideration of the Uenosono disclosure reveals that Uenosono teaches sintering the powder mixture – that is, combining the powders metallurgically. See e.g. paragraphs [0017] and [0019] in Uenosono. Unlike in Uenosono, neither the primary reference (Oliver) nor Applicants combine their iron powders metallurgically. Instead, Applicants combine their iron powders

only with the binder resin. Uenosono neither teaches nor suggests combining iron powders in any way but by sintering. Therefore – due to their fundamentally different technologies – there is no basis for combining the Uenosono disclosure with the Oliver disclosure.

The present invention solves the problem of cracking or chipping during machining or drilling processing of powdered cores, by composing the iron powder with atomized iron powder and reduced iron powder. Uenosono discloses nothing at all about prevention of cracking or chipping during machining or drilling processing. Even if the Uenosono disclosure is combined with the Oliver disclosure (which combination is improper, as noted above), their combined disclosures still do not provide Applicants' invention. Incidentally, an additional reason why the combination of Oliver and Uenosono is improper is because Oliver does not recognize the problem of improving die filling properties.

The Horie reference cannot properly be used to suggest the employment of polyimide binder in the context of the present invention. Horie relates to magnetic cores made by compression-molding of powder materials. This is quite different technology from the powder metallurgical product technology of the present invention. The use of binder resins in the Horie technology would not suggest to a person of ordinary skill in the use of the same binder resins in the very different technology of the present invention.

The Examiner's attention is respectfully directed to the recent decision of the United States Supreme Court in *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 82 USPQ 1385 (U.S. 2007). The holding of the Court makes it clear that simply showing that all of the elements of a claim are present in the prior art does not necessarily mean that an invention is obvious. The Court states that "... a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." and that "This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." Part of the obviousness inquiry here must be a consideration of

whether there is a reason for the person of ordinary skill in the art to do what is claimed. Accordingly, in general it is important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way they are combined in a claimed new invention. Withdrawal of the rejection of claims 1-6 over the combination of unrelated bits of technology arbitrarily selected from the Oliver, Uenosono, and Horie references is clearly in order, and is earnestly solicited.

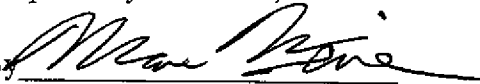
Contact information

If there are any questions concerning this application, the Examiner is invited to contact Richard Gallagher, Registration No. 28,781, at (703) 205-8008.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: July 6, 2007

Respectfully submitted,

26 By 

Marc S. Weiner

Registration No.: 32,181

BIRCH, STEWART, KOLASCH & BIRCH, LLP

8110 Gatehouse Road

Suite 100 East

P.O. Box 747

Falls Church, Virginia 22040-0747

(703) 205-8000

Attorney for Applicant